Augmented Reality Magnifying Loupe for Surgery
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Goals:
- Design a surgical loupe mount for optical see-through head-mounted display (HMD)
- Develop a calibration method to associate the field-of-magnified vision, the HMD screen space and the task workspace.
- Evaluate the proposed system.

Significance:
- Increase the clinical acceptance of HMD based augmented reality system.
- Provide accurate guidance and navigation in a wide range of computer-integrated surgery.

Results:
- A working prototype with $3.47 \pm 1.03 \text{ mm}$ error in magnified view and $2.59 \pm 1.29 \text{ mm}$ error in regular view.
Demo:

Maker alignment in the magnified view (video taken behind the Magic Leap One display)

Surgical Use Case:

Augmented target indicator in the magnified view for root canal therapy